

Lens, the blue at r will accordingly disappear and return, without any change made in the red at r. The red therefore depends on one sort of rays, and the blue on another sort, which in the Focus G where they are commixt do not act on one another. And there is the same reason of the other Colours.

I considered further, that when the most refrangible rays Pp, and the least refrangible ones Tt, are by converging inclined to one another, the Paper, if held very oblique to those rays in the Focus G, might reflect one sort of them more copiously than the other sort, and by that means the reflected Light would be tinged in that Focus with the Colour of the predominant rays, provided those rays severally retained their Colours or colorific qualities in the composition of white made by them in that Focus. But if they did not retain them in that white, but became all of them severally endued there with a disposition to strike the sense with the perception of white, then they could never lose their whiteness by such reflexions. I inclined therefore the Paper to the rays very obliquely, as in the second Experiment of this Book, that the most refrangible rays might be more copiously reflected than the rest, and the whiteness at length changed successively into blue, indigo and violet. Then I inclined it the contrary way, that the most refrangible rays might be more copious in the reflected Light than the rest, and the whiteness turned successively to yellow, orange and red.

Lastly, I made an Instrument XY in fashion of a Comb, whose Teeth being in number sixteen were about an Inch and an half broad, and the intervals of the Teeth about two Inches wide. Then by interposing suc-

successively the Teeth of this Instrument near the Lens, I intercepted part of the Colours by the interposed Tooth, whilst the rest of them went on through the interval of the Teeth to the Paper DE, and there painted a round solar Image. But the Paper I had first placed so, that the Image might appear white as often as the Comb was taken away; and then the Comb being as was said interposed, that whiteness by reason of the intercepted part of the Colours at the Lens did always change into the Colour compounded of those Colours which were not intercepted, and that Colour was by the motion of the Comb perpetually varied so, that in the passing of every Tooth over the Lens all these Colours red, yellow, green, blue and purple, did always succeed one another. I caused therefore all the Teeth to pass successively over the Lens, and when the motion was slow, there appeared a perpetual succession of the Colours upon the Paper: But if I so much accelerated the motion, that the Colours by reason of their quick succession could not be distinguished from one another, the appearance of the single Colours ceased. There was no red, no yellow, no green, no blue, nor purple to be seen any longer, but from a confusion of them all there arose one uniform white Colour. Of the Light which now by the mixture of all the Colours appeared white, there was no part really white. One part was red, another yellow, a third green, a fourth blue, a fifth purple, and every part retains its proper Colour till it strike the Sensorium. If the impressions follow one another slowly, so that they may be severally perceived, there is made a distinct sensation of all the Colours one after another in a continual succession.

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